August-September 1970

EMO

Must We Freeze in Crisis

Civil Defence in the U.S.S.R.

Hidden Economy in School Shelter

Civil Defence in Denmark

Survival

CANADA EMERGENCY MEASURES ORGANIZATION

EMO
NATIONAL DIGEST

Published by

Canada Emergency Measures Organization, Ottawa, Ont.

Department of National Defence

National Coordinator: C. R. PATTERSON

Vol. 10 • No. 4 **August-September 1970**

Contents

Must We Freeze in Crisis 1
Burke Stannard

Civil Defence in the U.S.S.R. 5
(Translation)

Hidden Economy in School Shelter 8
John A. Samuel

Civil Defence in Denmark 11
Erik Schultz

Survival 14
T. E. H. Helby

The EMO NATIONAL DIGEST publishes six editions annually to provide current information on a broad range of subjects dealing with civil emergency planning. The magazine is published in English and French and may be obtained by writing to the Canada Emergency Measures Organization, Ottawa 2, Ont.

In addition to publishing articles which reflect Canadian Government policy the Digest may also publish articles by private individuals on subjects of current interest to the emergency measures programme. The views of these contributors are not necessarily subscribed to by the Federal Government.

Editor: A. M. STRITOS

© Queen's Printer for Canada, Ottawa, 1970

MUST WE FREEZE IN CRISIS?

by
*Burke Stannard**

Reprinted with permission of the author and the Queen's Quarterly.

International crises since World War II have revealed the vulnerability of our defence arrangements through the lack of an adequate system of strategic warning (as distinct from tactical warning systems). The slowness and uncertainty of the decision-making processes at all levels of government in a time of crisis should lead us to examine the nature of strategic warning, its reliability and measurability.

In September 1964 Hurricane Betsy moved into the Gulf of Mexico. As weather offices plotted the tortured turmoil of cloud, Red Cross and Civil Defence officials evacuated threatened areas of Louisiana and assisted industries and home owners in preparing for the expected onslaught of the storm. Later it was estimated that preparedness and precaution had saved hundreds of lives and millions of dollars in property loss.

But in October of 1962 an even more ominous cloud had roiled in the Caribbean. The fearful reality of the Cuban Missile Crisis was brought home to the American people as President Kennedy told them that they might within days face the fury of a nuclear war. A comparison of social reaction to both events shows the inadequacy of national response to man-made crisis and also the obvious deficiencies of related civilian decision-making at all levels.

The war threat was many times greater than that from Betsy — whose actual damage was 1.6 billion dollars. It was also just as real and just as immediate. Many citizens sought advice from many sources and yet no official had anything significant to offer. The only reported advice in the United States came from a state official in California who suggested that families should buy an emergency stock of food. The resulting demand on local stores was immediate. Britain, too, felt the cold sweat of national fear. But the sober throngs of London took little action to lessen their vulnerability. There was a mild run on petrol supplies following a BBC comment that stalled cars would cause serious traffic jams in a real emergency. Canada also was caught in the frozen grip of indecision, ignorance and uncertainty.

And yet competent military analysts have claimed that forty-eight hours of clear strategic warning of the imminence of war could save more lives than the total defence preparations of the last twenty years.

**ABOUT THE AUTHOR*

Mr. Stannard, a member of the Defence Research Board, was Scientific Adviser to Canada Emergency Measures Organization during the six-year period 1963-69. He is now with the Defence Research Establishment, DRB, in Ottawa and is responsible for supporting studies for Canada EMO. Previous EMO National Digest articles include: The Effects of Disaster upon Systems of Human Organization (June 1966); Multiple Fires from a Nuclear Explosion (April 1967).

If people and communities act in a matter-of-course way to lessen their vulnerability to an approaching natural storm why should they fail to do so in the face of a greater man-made danger? If there are indeed many actions corresponding in effectiveness to the commonsense preparations of the farmer who brings in his livestock, closes his shutters and disconnects the television set, why are they never taken?

Since the end of World War II, the world has lived through several serious international crises and no one has suggested that it will not experience future situations where there will be a real risk of war. Each person knows that he may one day be in great personal danger; there is no place to hide. Therefore the logic which persuades communities to buy fire protection and individuals to pay life insurance premiums should move society to study the possible usefulness of strategic warning of nuclear war. How should a country best react to strategic warning? What actions should be taken at all levels from that of the federal authorities right down to the private citizen? Or in plain words, what would be the most effective national response to an international crisis?

It is sometimes assumed that there is in fact a contemporary national capability to react, but in reality is there any such ability? Would we not, in the real event, sit in stunned fascination until we were engulfed?

To answer these questions requires an examination of the nature of strategic warning, its reliability and its measurability. Also needed is an understanding of how decisions are actually made at national and lower levels. The following paragraphs will explore these points, hopefully avoiding the complex and sometimes obscure language of the defence analyst.

First, what is strategic warning? How does it differ from tactical warning? An example of tactical warning would be the radar identification of an actual launching of missiles. In the case of missiles launched against this continent from several thousand miles away, this type of warning would only be available fifteen or twenty minutes before weapons began to explode over our cities. This has been the main reason why some authorities claim that there never would be adequate time to take any defensive measures in an age of missiles. But might not a much earlier warning have been obvious and available from the realities of the general situation? This earlier alarm is what would be called

strategic warning. If conventional war had broken out and one side had resorted to the use of tactical nuclear weapons would not the survivors ultimately say in retrospect: "It should have been obvious that there was real danger of a full scale nuclear war"?

In this discussion there will be no further reference to tactical warning. The term strategic warning will be used to include all indications of a major increase in the danger of the initiation of nuclear war. To return to the comparison with natural disaster, strategic warning would correspond to the discovery by any means that a hurricane had been born and was following a path which might make it a threat to the mainland.

There are two methods of obtaining strategic warning. One is through the covert actions of secret intelligence operations and the other is through the analysis of current events. Strategic warning obtained through secret intelligence with no concurrent existence of crisis could only occur in the case where an antagonist intended to launch a surprise attack. If it can be shown that the probability of surprise attack is extremely low, the discussion may be simplified without distortion by limiting consideration to the strategic warning which would be obtained through the existence of a crisis. Thus the first question to examine is whether there is such a low probability of surprise attack that a crisis is virtually certain to precede any future major war.

Major war without preceding crisis in theory could occur through the accidental use of nuclear force. Mistaken orders, an insane commander or a malfunctioning computer have initiated total war in a number of fictional works. However, an examination of the multiple safeguards that now exist, together with the fact that retaliatory weapons are now less vulnerable to immediate destruction, leads to the conclusion that accidental war is only a very remote possibility.

This mention of the stabilizing effect of less vulnerable retaliatory weapons needs a brief explanation. When long range missiles were in known locations and were on the exposed surface of the ground, the owner was under some compulsion to use them immediately upon obtaining tactical warning of any attack. Otherwise they would be destroyed and be ineffective. However, retaliatory weapons whose position was unknown or uncertain — such as those carried by submarines — or which were located in deep underground shelters and could be expected to survive any conceivable attack, would be much more likely to be withheld until the owner was certain that he had indeed been intentionally attacked and knew from whence the attack came. Thus an initial accident would not be likely to precipitate a massive response. The possibility of accidental war is now sufficiently small that it will not be considered further in this argument.

A war without a forerunning crisis could also happen if some nation decided that it was worthwhile or necessary to launch a surprise attack. Surprise has always been a major element in military tactics, but in the second generation of the nuclear age it has been reduced to the point of being both illogical and suicidal. This results from the fact that no matter how one of the main adversaries were to plan and carry out a surprise attack, his victim would still have enough surviving nuclear force to retaliate with an unacceptable amount of punishment. This is the simplistic form of the argument that strategic surprise is no longer an acceptable offensive option and is therefore improbable.

But will this situation endure? Dispersal and mobility of counterstrike weapons may be defeated by better surveillance and intelligence. Hardening of missile sites may be cancelled out by improvements in offensive weapons systems. And a major imbalance of anti-missile capabilities is always a future possibility. Therefore it is possible — at least in theory — that surprise attack may at some future time once again become a real possibility. But, when all the facts are considered, it seems rather unlikely that any of the major powers will in the foreseeable future achieve such a clear-cut advantage on either side of the offensive-defensive balance as to make surprise attack worth considering.

Thus we are left with but one major avenue for the initiation of a nuclear war. This is through confrontation and/or escalation which of necessity would be accompanied by heightened international tension. And so it does appear most probable that any future war would be preceded by a period of crisis and that strategic warning would indeed be available. This has led to the new defence philosophy of "crisis management."

Man's view of the future is often obscured by his problems of the present. And during an extended period of relatively low international tension — a so-called détente — it is very tempting to assume that the future will merely be an extension of the present. Defences may be allowed to run down on the basis of capabilities which have been assumed but not proved. Reduced to its simplest terms the crisis management philosophy says: "There is no need to take this defence action now or to spend this particular defence dollar at this time because any future major war will be preceded by a period of crisis during which there will be ample time to complete the action in question."

This is an attractive theory which may in fact offer certain real advantages. But before acceptance it should first be shown that the reaction to a future crisis can be both systematic and reliable. Otherwise new terms such as "crisis management" and "defence cost deferment" may really be only synonyms for procrastination. It has to be shown that strategic warning would be perceived and would be acted upon. With but a small amount of study it becomes obvious that the subjective or intuitive element in national decision-making would have to be reduced or eliminated before there would be any real defence value in strategic warning.

The relationship between subjectiveness and decision-making immobility should be examined and understood.

Decisionmakers have always been, and still are, loath to take action on the basis of stated odds or levels of risk. They have always preferred unqualified predictions

at either zero or one hundred per cent probability. They have asked for advice on an "either it will or it will not" basis.

Ancient kings employed soothsayers on the "yes or no" system. No renowned prophet ever said "maybe." The king's adviser who was observant of natural phenomena may have had a better-than-even chance of guessing right several times in succession and thus enjoying a period of fame and influence. But under a system where he was forced to say either "yes or no" his ultimate downfall was almost certain.

This concept of unqualified prediction on the part of the leader has become ingrained in many parts of the human social structure and has been carried down to present times as a "go, no go" rule as far as any significant reaction to an immediate war threat is concerned. The feeling that the future is uncontrollable or preordained and that there are but two extremes of probability has contributed in many ways to this rigidity. It is seldom realized that an unqualified predictive "yes or no" is a mathematical absurdity.

The application of soothsayer control to modern defence seems unthinkable, yet it has in fact been a basic element in many countries in national decision-making during many, if not all, crises. Consider the modern parallel of the king and his prophet. A tense international situation exists. The head of state summons his intelligence experts and directs them to examine the portents. Will there be war or will there not be war? If the prediction is that there will not be war then no costly or disturbing actions need be taken. But the system is severely biased towards this attractive negative decision. What government would dare to predict the certainty of war when to do so and to be proven wrong would invite the wrath of the populace? Elected officials today exist at the pleasure of the community much as the prophet kept his head at the pleasure of the king. History has examples of those who said "Peace in our time" and were proven wrong. But seldom, if ever, has a head of state dared say "War is upon us!" The over-powering temptation is towards optimism and inaction.

If one examines the reactions of various governments to the Cuban crisis it is obvious that most of the Western countries remained in the frozen grip of the "go, no go" system.

As long as the defence decision-making apparatus is controlled by subjective components it must of necessity develop greater and greater inertia as a point of total war is approached. This is true by its very nature. The subjective system can never say "yes" until there is certainty and there can never be certainty in advance of the event. Therefore, if there is any defence value in strategic warning it can only be on the basis of an objective and graduated response to that warning. This leads to the question: "Is it possible to clear the system of subjective components?"

It may be of interest to consider how present-day automation applies computer control to complex industrial processes to avoid a variety of disasters. A computer can never develop subjectivity or intuition. It is dependent upon "yes, no" inputs and responds with "go, no go" outputs. Controlling action and graduated response to an undesirable change in any process element is obtained from a multiplicity of inputs.

In a similar manner the farmer responds to the threat of storm. He looks for indicators and mentally stores "yes, no" answers. Is the sky threatening? Is the barometer falling? Is there a roar of approaching wind? Is there a tornado cloud? He responds with graduated "do or don't" actions. Close the windows. Bring in the livestock. Fasten the hurricane shutters. Take shelter in the cellar. None of these actions prevents the storm but each one reduces his vulnerability to it.

The parallel may be further explored by again examining Hurricane Betsy. The meteorological services in the hurricane-prone areas of the United States have developed an entirely objective warning system. At no stage are subjective elements introduced to warn that there will definitely be or not be a hurricane at a particular point. The whole system of protecting the population involves a graduated response to objective information. As more and more indicators read positive, successive defensive actions are initiated. At early stages, when only a few indicators are positive, schools may be closed and hospitals warned. When a greater number of indicators becomes positive, elements of the population may be evacuated. The indicators are always factual and defensive actions are initiated automatically at preagreed levels of combinations of indicators. Strangely enough, when safety actions turn out to have been unnecessary there are seldom any recriminations.

In like manner, in order that there be any real defence value to potential strategic warning, there would have to be an automatic and graduated response to an agreed scale of objective indicators which were in some way directly related to the immediate probability of major war.

It is possible to develop a set of strategic warning indicators? Certainly people recognize an international crisis when they are in one. How is its existence perceived? How do citizens individually assess its relative seriousness? Do they not subconsciously total a whole set of indicators of their own selection? Do they merely accept the word of authority or are there tangible signs of danger? It would seem that there are a great many facts, signs and conditions which might be categorized and read on an objective basis with a view to producing a strategic warning scale. If any reliance is to be placed upon an expected capability to measure and react to crisis an exhaustive study must be initiated to identify and categorize all possible objective indicators which relate to strategic warning. Once this has been done it should be possible to devise a crisis scale for the initiation of various defensive measures and actions.

It is equally important that studies be completed to determine all possible worthwhile actions which could in fact be initiated at various levels of alarm. By

consulting operational authorities from all the essential organizations, services, and systems of the national social, economic, and industrial structure, it should be possible to work backwards from a detailed scenario which terminated in total war and thus to identify, categorize, cost and time-scale all actions which should and could be taken during a period of increasing national danger.

In the years following the beginning of the atomic age, most countries decided that some form of passive defence would be meaningful and potentially effective as part of a total defence effort. In most of the Western European nations, civil defence has been accepted as necessary and has received a reasonable degree of popular support. As far as is known, this is also the case in Eastern Europe. However, in Great Britain and in North America there has been a distinct disinclination to make any realistic, reasonable, and unemotional value-comparison of non-military defence potential with modern complex and expensive systems of military hardware.

This attitude has resulted from two main factors. The first of these has been the comparatively unimaginative and offhand approach to non-military defence. Many of the individuals appointed to the existing effort have been mentally pre-conditioned by years of association with the conventional armed forces. Possibly for this reason the whole range of passive defence potentialities was either insufficiently examined or undersold. Certainly this side of defence has not been accepted either by government or public on a real-value basis.

The second factor has arisen from the pattern of individual and group behaviour in contemporary society. Somehow the concept of survival by avoidance, by hiding, or by running away still clashes with the lingering aura of military tradition. We remain the brave and the bold! To many civilians, passive measures or at least concern about passive measures, seems "chicken"; to the soldier they are somewhat demeaning. And yet, to the unemotional analyst they are impressively effective. Why, he asks, do we not apply the same common sense we exhibit in dealing with natural disasters?

The passive measures advocated by civil defence are reasonably well known and are centred primarily around the provision of shelter. But hail insurance is difficult to sell in November and society always faces a variety of demands both urgent and immediate. Thus it is much too tempting to say: "Let's wait a while."

If, as seems very possible, we arrive at our next serious crisis with no more shelter than we have now it would be good to know how best to improvise and adapt during the time of strategic warning.

During the years in which strategic warning has been ignored there has been an assumption that large cities could not be evacuated. This also hinged on the "everything or nothing" concept. Certainly it seems unlikely that the complete evacuation of Montreal or Toronto could ever be ordered. But in London, when a twenty-four hour subway strike was planned for a work-day, the London County Council effectively countered it by publicizing the need for commuters to take one day of their official holidays. The city was not evacuated, it was just less filled. The ability to shift portions of the population needs to be re-examined in the light of strategic warning.

What would be the effect of forewarning on the losses of highway trucking in the event of a nuclear war? Could the patterns of loading and transfer be changed during a crisis to make this part of the transportation system less vulnerable to attack? The same argument would apply to air transport and services. What essential airport aids should be moved to secondary airports during an emergency?

If the whole pattern of industry and commerce becomes dependent upon centralized computers what inexpensive and non-disrupting measures should be planned for their preservation in a crisis? It is probable that there are literally thousands of points in industry and in the economy where low cost actions could be taken now or during a crisis to make the whole country less vulnerable to attack.

There is a third and equally important area of study where knowledge and understanding are essential to achieving the ability to respond to alarm. This concerns the mechanics and methodology of decision-making. When complex systems are adapted to automated control it is necessary to reduce the information communication load within the system to a minimum. This can be done only by programming component reactions within acceptable limits of deviation and exercising overall systems control on a corrective rather than a directive basis. This statement of principle may seem a bit obscure but may be illustrated very clearly by an example from crisis experience. Ideally, at every stage of a crisis buildup, each authority point in each of the essential systems in the nation should carry out automatically a complete set of pre-agreed actions unless specifically instructed not to do so. In this way, less communication is needed and decision-making inertia does not interfere with systems response. If each action in a complex system must be initiated by a specific command, a communications overload is inevitable. This is the systems equivalent of the need for an automatic reflex nervous system in the human body. Physiologically, where a quick damage-limiting response is essential, the processes of intellectual examination and conclusion are too lengthy. Perception sensors initiate a reflex response without conscious effort. The finger is jerked from the flame before the brain examines the evidence of hurt.

Slowness of national response might have been tolerated when vital heartlands were not threatened with obliterative attack and when threats to organized existence developed with comparative lack of haste. But to be handicapped by inertia in the face of the potential impact of present and future war is not acceptable. An automatic reflex must be developed in the overall social structure of the country as a defence necessity. ▲

CIVIL DEFENCE IN THE U.S.S.R.

"Attention, Citizens – Air Alert!"

by
Werner A. Fischer
The following article has been translated from the German magazine Zivilverteidigung dated March 1970.

Screeching Sirens — their wailing sound vibrating from the rooftops of residential homes for almost three minutes, joined and amplified by the sirens and whistle-signals of factories and plants, public buildings and administrations, ships and locomotives. Shortly afterwards, the radio station interrupts its regular program. A sonorous voice announces: "Attention! This is the civil defence staff speaking. Citizens, this is an air alert! Air alert! Air alert!"

This is how the authors of Soviet publications on civil defence envisage the "prelude" to a state of emergency. A textbook under the title "Protection of the Civilian Population against Modern Weapons of Destruction", published in Moscow by DOSAAF, the most important para-military organization in the USSR, offers this information:

"Air Alert can Come Suddenly." This means that enemy aircraft or missiles have violated the airspace of our homeland and that the city may be attacked within a very few minutes.

Following the 'WT' — signal (WT, abbreviation of Vozdushnaya trevoga = air alert), citizens belonging to the non-military GO — formations (GO, abbreviation of Grazhdanskaya Oborona = civil defence) proceed to the assembly points of their units. Workers and employees follow the directions of their administrations. The civilian population must immediately proceed to their designated bunkers and shelters.

Detailed Instructions

In actual fact, the air alert applies only to the citizens — at least in the 1880 cities of the Soviet Union totalling over 130 million residents. There are no provisions for the protection of dogs, cats, pet birds and fish and any other domestic animals in such a case of emergency. The Soviet instructions state emphatically that it is prohibited "to take domestic animals" into the shelter, and this provision is indeed hardly different from similar emergency plans in other countries.

Times of Emergency Require Emergency Measures. In case of an attack, the population has to follow the instructions which have already been prepared in minute detail. (It is not without good reason that the Soviet civil defence system is considered to be the most progressive anywhere, although the responsible authorities in Moscow quite frequently deplore the apathy of many a citizen. Quoting from the textbook (issued by DOSAAF) mentioned earlier, here is one example:

"The Occupant of a Shelter must strictly comply with the regulations applicable to the occupancy of the shelter, and it is imperative that he obey the directions of the shelter commander and wardens. Smoking, making a noise, running, singing, loitering and loud talking are forbidden. Left-over food and paper has to be collected after meals and deposited in designated places. It is forbidden to bring into the shelter substances and materials having a specific or penetrating odour as well as any belongings which would take up much space."

Civil Defence orders like these prove that, as far as can be predicted, there need not be a repetition of July 3, 1941 in the USSR. On that day, shortly after the start of the German "Operation Barbarossa", a British military mission landed in Moscow which was then threatened by German troops. There were also two civil servants from the British Home Office attached to the mission, one being a specialist in fire fighting and the other an expert in air defence. They were briefing their Soviet colleagues who had only some theoretical knowledge with regard to effective measures for the protection of the civilian population against air attacks and artillery barrage.

Sand or Water?

At the same time, readers of "Isvestia" were discussing in letters to the editor whether it would be more advisable to extinguish fires with water, which the Soviet experts had recommended until then, or with sand, used by the British. This discussion was triggered by an article of the British journalist Alexander Werth concerning air defence measures in London, which the government-controlled Moscow paper had published. It ended when the Director of the local air defence (MPWO, predecessor of GO) issued a directive that the population should use sand for extinguishing fires in future.

Werth was in Moscow during those chaotic and critical months. He reports in his book "Russia in Wartime", which has already become a standard reference book in this field, how strictly the Soviet authorities ensured that every citizen carried out his civil defence duties:

"Nobody was allowed to sneak away when it was necessary to extinguish fires. Three young lads, who had evaded their duty which resulted in the destruction of a large department store worth 3 million rubles, were shot."

Hundred Nationalities in One State

It is again the duty of all citizens of the USSR today to participate in civil defence training. A prerequisite to the smooth functioning and strict fulfilment of this requirement is, however, a tight organizational system which is capable of serving the entire country, down to the smallest collective farm. The All-Union civil defence staff under the direction of Marshal Zhukov, located in Moscow, has been given a task which requires a gigantic effort of implementation.

After the expansion of the local air defence organisation (MPWO) into the civil defence organization (GO) in July 1961, Marshal Zhukov himself said that during World War II, the MPWO system — organized only in those cities and locations that lay within the flightpath of incoming enemy aircraft — had been sufficient, but that there was today no corner of the earth which could not be reached by nuclear-powered missiles. Consequently, it would be essential now to protect the people, industries etc. in every locality.

One look at the map shows what this means. The territory of the Soviet Union covers more than 9,000 kilometers in the westeast direction — from the Bay of Danzig to the Pacific Ocean — and more than 4,500 kilometers in the northsouth direction — from the Arctic Ocean to Anterior Asia. Extending over an area of 22,402 million square kilometers, she is territorially the largest state of the earth. The Soviet Union is approximately 90 times as large as the Federal Republic of Germany, more than double the size of the USA (9,364 square km.) and Europe (10 million sq. km.) or the People's Republic of China (9,743 million sq. km.).

The European part of the Soviet Union, covering 5,571 million sq. km. constitutes only a quarter of this vast area. 16,831 million sq. km. of the USSR territory lie in Asia. (The entire continent has 44 million sq. km.) This area is particularly threatened because of China.

The territorial extent is not the only problem for effective civil defence planning. The population of the Soviet Union consists not only of Russians. Though over 50 per cent of them make up the bulk of the 240 million population, there are still over 100 other nationalities and ethnic groups besides them in the Union of Socialist Soviet Republics whose languages enjoy formally equal status with the official Russian languages. Apart from those listed on the chart, these are — amongst many others — for example:

Germans (75 per cent of these speak German as their mother-tongue), Bulgarians, Koreans, Greeks, Gypsies, Calmucks, Romanians, Finns, Kurds, Turks, Circassians, Chinese, Czechs, Persians, Slovaks, Tadzhiks, Arabs, Eskimos, Vietnamese and Aleuts. All of these, and the many other nationalities not enumerated here, shall and must be included in the civil defence system according to the will of the leaders in Moscow.

Union of 15 Republics

In their efforts to perfect the civil defence system, Marshal Zhukov's All-Union Staff in Moscow depends on the co-operation of the authorities in charge of the 15 republics which constitute the federal state of the USSR.

Over 100 languages are spoken in these 15 Soviet (Union) republics. They are, to a large extent, so distinctly different from the official Russian language (which is the national language of approximately 115 million Soviet citizens) that the use of dictionaries is necessary. After Russian, Ukrainian and Bjelorussian are the most widely-spoken languages of the USSR. This is mentioned here only to demonstrate the linguistic difficulties alone confronting a comprehensive propagation of civil defence information.

Is Moscow Governing Alone?

According to the Constitution, the highest organ of state power and sole law-making body is the Supreme Soviet, which consists of two chambers: the Soviet of Union — as it is referred to in the "Great Soviet Encyclopedia" — "representing the common interests of the entire labour force of the USSR regardless of their nationality," and the Soviet of Nationalities, in charge of the "specific interests of the nationalities."

The Presidium of the Supreme Soviet which — at any rate, according to the wording of the Constitution — conducts the routine business of government in between the sessions of the Supreme Soviet, and appoints the ministers, is elected by both chambers. The President of the Presidium of the Supreme Soviet has the function of a Head of State (at present, this is Podgorny).

According to the encyclopedia, the entire system of state administrative bodies "is under the direction of the Council of Ministers of the USSR, which is the government and the highest executive and administrative body of state power." Its chairman (presently Kosygin) is also the Premier of the Soviet Union.

The organs of state power and governmental administration in the 15 Union Republics correspond to those of the highest level of government of the USSR. Each republic has a Supreme Soviet (there is, however, only one chamber) and a Council of Ministers. The same applies also to the autonomous Socialist Soviet Republics.

And the Party?

The Communist Party of the Soviet Union (CPSU) provides the candidates for all councils representing the people in the USSR; it also selects independent candidates, such as prominent artists, scientists or sportsmen — from the Supreme Soviet to the Soviet at the local level. The Party penetrates the bodies of state power and state administration on every level. It should be clear, therefore, that in actual fact it is the Party which determines the political guidelines of the Soviet State.

"All power to the party" — to the Central Committee of the CPSU. To carry on its work between plenary sessions, "the Central Committee of the CPSU organizes the Presidium, for the conduct of routine business, and the Secretariat, mainly to control the execution of Party resolutions and to organize the selection of Party units (cadres)." (Reference: Great Soviet Encyclopedia). The leading position is held by the First Secretary of the Central Committee. This is Leonid Brezhnev at present.

How much the CPSU supports the development of civil defence in the Soviet Union can be seen from a speech delivered by Brezhnev at the 23rd Party Congress at Moscow. He stated amongst other things: "We must help to make sure that the civil defence and the military patriotic efforts of the working people, particularly also among our youth, achieve a special success. The whole Party and the entire Soviet public must constantly strive towards this goal."

Kazakh borders on Sinkiang, the nuclear province of China. There have been repeated skirmishes between Russians and Chinese in this area, which have now induced the leaders of China to make an all-out effort in preparing for a military conflict. However, the Soviets are not resting either. On August 14, 1969, an article published by "Pravda" caused great excitement. It was written by Titov, the Party-Secretary of the Kazakh Socialist Soviet Republic (the Party seizes the initiative!). Titov dealt in some detail with questions of civil defence in the crisis area along the Chinese border and demanded that a new civil defence bill be enacted.

On the very same day, a West German broadcaster, Ulrich Schiller, made the following comments from Moscow concerning Titov's article:

"It is symptomatic of the present situation that this article is to be found already in today's issue of Pravda, i.e. the copy had obviously been typeset before for release in case an emergency situation developed, in order that this step of preparing the people psychologically for the state of emergency could now be acted upon.

This bill will define the responsibilities of the command powers in the civil defence sector with regard to their rights of intervention, particularly in the economic field and the private "domain" of the citizens . . .

Provisions are to be made now to ensure that primary industries can continue to produce raw materials in Kazakh even under wartime conditions. The planned evacuation of the population from the large cities are to be made, as it were, operational through a kind of emergency measures legislation. Again, the decisive initiative comes from the Party. The CPSU was also instrumental in the formation of GO which took over from MPWO in 1961."

War Hero with New Tasks

Four days after the building of the Berlin wall — on August 17, 1961 — a civil defence staff was set up by decree of the Central Committee of the CPSU with which the Soviet Government "concurred". (At that time, Krushchev was both — First Secretary and Premier). The Party appointed Marshall Wassilij Zhukov — who was then Commander-in-Chief of the Soviet Army — to be come Chief of this command. Zhukov was born in 1900 near Tula and is still one of the most popular heroes of World War II. He distinguished himself in particular as the defender of Stalingrad. Between 1945 and 1948, he was in command of the Soviet Military Government in Thuringia, and from 1949 until 1953 (Stalin's death) Commander-in-Chief of the Soviet Armed Forces in the German Democratic Republic and Chief of the Soviet Military Government. He has been a member of the Central Committee of the CPSU since 1954.

Zhukov demanded the build-up of a civil defence system and in subsequent years established a tight organization at the central, regional and local levels.

The central organization, located in Moscow, is under the direction of Marshal Zhukov and an All-Union staff. The centre issues its directives to the GO-administrations in the 15 union republics, which in turn— following the example of the federal structure of government in the USSR — have a Chief of civil defence and a civil defence staff (regional organization). The same civil defence system exists at the lower levels of government in the counties, territories, autonomous territories, municipalities, districts, cities, towns and villages of the individual union and autonomous republics.

The Civil Defence authorities at the local level have — inter alia — the following responsibilities:

- to plan and implement the necessary measures for the protection of the population;
- to set up a warning system capable of alerting the entire population quickly *before* an impending attack;
- to ensure that the citizens receive a thorough training in civil defence matters;
- to make arrangements for the issue of the authorized equipment to the civil defence services and to ensure that they are operational at all times. (A detailed report concerning these services will be forthcoming);
- to guarantee full co-operation with all subordinate levels of civil defence;
- to organize and direct rescue and repair operations following an attack.

A word of explanation from the party leadership will, indeed, reach the local civil defence chiefs even in case of war. Provisions for the survival of the leaders were made some time ago. Col. Oleg Penkovskiy made the following comments on this in his book "The Penkovskiy Papers":

"A subterranean headquarters had been built in the Ural mountains, to serve as a shelter for the Central

(Continued on page 18) **CIVIL DEFENCE**

HIDDEN ECONOMY IN SCHOOL SHELTER

by
John A. Samuel

Wherever blast and thermal effects of nuclear weapons are not anticipated in nuclear attack, fallout shelter can be considered to be adequate preparedness. But even fallout shelter, as easy as it is to come by, finds the going rough, especially in rural and small town schools, where it is needed most. The author of this article is a veteran of many years of OCD shelter research.

Introduction

by
T. J. Galway
Canada Emergency Measures Organization

Reprinted from "SURVIVE" Vol. 3 No. 3

The major dilemma facing many civil defence planners today, is one stemming directly from the present near-vacuum financial climate, namely where and how does one commit funds to achieve the best possible value in terms of civil protection in the nuclear war context.

Without doubt, the most far-flung nuclear weapon effect is the secondary, but highly residual, one of gamma-radiating fallout. Again, to emphasize the residual effect of fallout, let us not forget that despite a discrete radiation decay rate, there is also the uncertainty of whether or not persons exposed to dose rates at any level will be free from long-term genetic effects resulting in later life abnormal physical deterioration. From these considerations, it is apparent that funds invested in fallout protection are in fact placed in a long-term survival capability for the population. However, in this day and age single-purpose fallout shelters across the land, would definitely be financially unpalatable and indeed would have a well deserved "white elephant" stigma. The very practical alternative to this Utopian scheme would be to construct all major buildings with a secondary capability for emergency shelter in a wartime situation. Buildings constructed to Protection Oriented Design principles cost little more than similar structures whether they be office complexes, stores, manufacturing plants or schools.

Schools appear to offer the most significant returns in sheltering capability for the efforts required, in terms of finance and design. Schools are community-centred buildings, everyone knows how to reach them and by virtue of their initial or primary design requirements, they can house a greater "emergency population" without the need for drastic austerity type accommodation. Canada EMO studies of protection oriented school design indicates that the optimum dual-purpose school design would be of windowless-configuration, which for a wide variety of advantageous operational reasons is the configuration accepted by a large number of school administrators throughout North America. Whether one decides to go windowless or not, there are many attractive options open to the designer of protection oriented schools today. The clean modern lines of contemporary architecture, allied to the desire for aesthetic grouping of the functional units, all provide the designer with wide opportunities to incorporate fallout protection with little financial penalty and certainly no intrusive penalty with regard to the primary function of the structure, i.e., an optimum environment for learning with the big hidden advantage that vital protection is at hand — if it's ever needed. We can, therefore, record "good agreement" with the findings of Mr. Samuel on school shelter philosophy.

Mr. Samuel's most interesting article talks of hidden economies in school shelter, let us not forget also that a nations' greatest asset is in the children and young people, for they are that nations' vital link with the future, the ultimate survivability of their culture and national identity.

The current civil defense program of the United States is oriented toward a nationwide system of fallout shelters. The present approach to development of new shelter facilities is to incorporate dual use shelter areas in the designs of new buildings by the use of so-called "slanting" techniques.

In many suburban, residential and rural areas the public school is the only building large enough and substantial enough to make slanting economically feasible and thus offers the best possibility to create shelter in the area. As cities and towns grow and new residential areas spring up on the outskirts, new schools are planned and built to accomodate the children moving into the new areas. For these, and other reasons, schools are considered to be one of the most important sources of possible new fallout shelter facilities.

In places where schools are customarily built with basements the creation of shelter is accomplished quite easily and with very little increase in construction costs. In other locations, principally metropolitan areas, schools are, of necessity, built as multi-story structures. Here again shelter can be incorporated economically.

In many places, however, it is not feasible to build schools with basements and land use does not require multi-story construction. In some localities fire exit codes make it difficult to obtain approval of even two-story buildings for elementary schools. In these areas the typical school is a single-story building, completely above ground, often of lightweight construction.

In view of the many advantages of schools as shelter locations it is indeed unfortunate that the single-story, above-ground building is the most difficult type of structure in which to incorporate shelter. It is not, however, impossible nor is it excessively expensive. Fallout shelter has been incorporated in single-story, above-ground school buildings at costs which are quite modest compared to the total construction budget.

The cost of incorporating shelter in a building may be expressed in one of two ways: either as a specific dollar amount or as a percentage of the total cost of construction. Since the usual procedure is to use only a portion of the building as a shelter area, the cost of slanting is more directly a function of the size of the shelter area than it is a function of the cost of the entire building. Thus, expressing the increased cost as a percentage of total cost would tend to favor the large building and penalize the small building. If, for example, the cost for shelter were $20,000, this would be 10% of the cost for a $200,000 building and might well be rejected as being excessive. On the other hand, if the building were to be a $1,000,000 structure, the increase would be only 2% which could be acceptable.

These figures are oversimplified in order to illustrate a general principle. The cost for a given size shelter area is unlikely to be exactly the same for a large building as for a smaller building since many other factors are involved.

In cases where shelter has been successfully incorporated in single-story, above-ground schools, the architect has considered the requirements for radiation protection from the inception of his design. These requirements have been a part of the design program. If the architect waits until his preliminary plans are completed it becomes too late to apply no-cost or low-cost slanting techniques and the cost for adding shelter to the design becomes excessive.

An architect engaged in the design of school buildings often becomes an advisor to the school board on school design and construction. He may thus have a great deal of influence on the ultimate design of the structure. In the final analysis, however, the architect must be responsive to the instructions received from the board and conform to the specifications established for the project. If the specifications do not include fallout shelter as one of the design requirements it is probable that the architect will give little, if any, consideration to this aspect of the design, unless he happens to be personally interested and dedicated to the principle of developing additional shelter. The first prerequisite for incorporating fallout shelter in new school construction is, therefore, that the school board make a decision in favor of shelter during the early planning for new construction. This decision must then be implemented by including the requirement for shelter in the instructions furnished to the architect and by providing for any additional costs when the construction budget is established.

Before a school board can make a decision in favor of shelter it must have the necessary information on which to base the decision. Faced with rapidly increasing enrollments, limited construction budgets and inflated construction costs, school boards are not easily persuaded to spend on shelter money which might otherwise be applied to more classroom space, laboratory equipment, or other items necessary in the educational program.

In addition to limited budgets for construction and educational programs, school boards are beset with many other problems, some of which seem to have no satisfactory solutions. The problem of shelter in schools is one which can be resolved quickly and finally merely by saying, "We can't afford it." It can be easily rationalized that a nuclear disaster is not going to happen and that, even if it should, the responsibility for providing shelter rests with somebody other than the school board.

Thus the problem is resolved and can be removed from an already crowded agenda. No one raises any objection. No one applies any measure. No one starts a demonstration or initiates court action. No federal or state agency threatens to cut off funds. The board can turn its attention to "more important" things.

Under these circumstances only an exceptionally knowledgeable and dedicated school board would decide in favor of spending some of their limited construction budget for fallout shelter. It is probable that they would have to be convinced that there are advantages other than radiation protection to be derived from the expenditure of these funds.

There are sufficient benefits in addition to shelter to make a valid argument in favor of incorporating radiation protection. Basically, the argument can be summarized by the fact that the type of construction required will provide a more durable, maintenance-free building and that cost savings over the life of the building may more than offset the increased construction cost. Some of the points in the argument are outlined below.

- It is normally easier and more economical to incorporate shelter in a two-story school than in a single story building. If all concrete construction is used for the two-story plan, shelter is often created on the first floor without any increase in cost.

  Two-story construction offers the additional advan-

tage of a lower cost per square foot for construction in most cases. At the same time it requires less land, which results in a lower land acquisition cost or leaves more room for future expansion.

In areas where codes make it difficult to get approval of a two-story elementary school, it may still be possible to locate administration offices, teachers lounges, planning rooms and similar areas which do not require the accommodation of small children in a partial second story.

- In order to enhance the radiation shielding potential of a building it is desirable to reduce the size and number of windows. In addition to improving radiation protection this will also reduce construction costs since it is cheaper to build solid walls than to build walls with windows in them.

  Windows admit heat in the summer and cold in the winter to a much greater extent than do solid walls. Reduction in the window area will, therefore, reduce the cost of operation of the heating and cooling system.

  The cost of replacing glass broken by accident or vandalism is usually a major maintenance cost for schools. This cost would be reduced if there were fewer windows. Windows often admit excessive light or glare into classrooms. If there are no windows or if the windows are offset or baffled for radiation protection there is less need for curtains, drapes, venetian blinds or other light control devices and the room is more easily darkened during use of audio-visual aids. At the same time, outside distractions are reduced or eliminated, promoting a better learning environment.
- One technique which might be used to increase the mass of exterior walls for radiation protection is to add a brick facing. Since brick does not have to be painted every few years as does concrete block the cost of periodic painting is eliminated. The additional mass in the exterior wall also reduces the transfer of heat through the walls with a resulting decrease in operating costs for heating and cooling.
- Masonry interior walls provide effective barriers against the spread of fire and effective sound attenuation. In fact, concrete block walls with the cells in the block filled with sand are often used around band or choral rooms for sound isolation. Such walls are often suggested for radiation protection.

  Current education concepts often call for large open areas with only light, movable partitions between instructional spaces. Thus fixed, masonry walls are contrary to educational specifications for the building. There are, however, areas which require fixed walls or where masonry walls can be used without adverse effect on the instructional programs. Such areas might include auditoriums, gymnasiums, food service and dining facilities, band and choral rooms or some multi-purpose rooms. In order to promote efficient traffic patterns these facilities are often located in the core of building and thus become logical possibilities as shelter areas. Thus fixed, masonry walls can still be used for radiation barriers.
- In order to have adequate radiation protection in any building it is necessary to have shielding barriers overhead as well as in the walls. This normally requires concrete roof and floor construction.

  On two-story buildings, the barriers are provided by the roof plus the second floor and the necessary mass can be provided by structural systems which are not too much different from normal concrete construction. Thus the cost increment for shelter in a two-story school is usually significantly less than for a single-story structure. Often fire code requirements for a two-story building can be met as cheaply with concrete construction as they can with steel bar joists and fire retardant dropped ceilings.

  On a single-story school, however, the requirement for a massive concrete roof system over the shelter area is the most significant element of increased cost. The necessary radiation barrier cannot be provided by anything similar to normal roof construction.

  The cost of this massive roof is often difficult to justify solely on the basis of increased shelter capability when available construction money is limited. If this cost is not included when the construction budget is adopted, other educational facilities might have to be sacrificed in order to provide this roof. Few school boards would make this sacrifice unless there are compensating advantages. Such advantages might include:

  a. *Reduced maintenance.* A properly designed and constructed concrete roof system should last for the life of the building with little need for repair or replacement. A typical lightweight roof might have to be replaced in 10 to 15 years and, in the meantime, might have to have maintenance to repair leaks.

  b. *Reduced fire insurance premiums.* A concrete roof system might be expected to have a two-hour fire insurance rating as compared to a one-hour rating for the typical steel bar joist with gypsum deck roof. The two-hour rating would normally carry a lower fire insurance premium on the building and the contents. The savings on insurance premiums would extend over the life of the building and might almost balance the increased cost of construction.

  c. *Improved windstorm protection.* A properly constructed concrete roof is not likely to blow off in hurricane or tornado winds. The loss of a lightweight roof in a windstorm can result not only in the expense of replacing the roof but also in possible loss of or damage to the contents of the building and possible injuries or deaths of the occupants. The concrete roof might, therefore, be viewed as a form of storm insurance.

Although there are many advantages to be derived from incorporating shelter in a school the fact remains

(Continued on page 18) **HIDDEN ECONOMY**

CIVIL DEFENCE IN DENMARK

This presentation was made by Erik Schultz, Director General of the Danish Civil Defence, at the Eighteenth Annual Study and Conference of the Association of Civil Defence Officers, on 26-28 June, 1970, at Scarborough, England.*

In my briefing here today on Civil Defence activities in Denmark, there is one particular point which I want to emphasize first, namely: One has to think twice before making comparisons from country to country. A number of differences are manifesting themselves with respect to the conditions under which the Civil Defence organizations are built up in the individual countries. Besides obvious differences of a political and economic nature, so many other differences are making themselves felt, among which the following are deserving of special mention:

The countries on the European Continent have to base their Civil Defence planning on the assumption, among other things, that the Civil Defence organizations should be able to function during land war operations resulting from hostile invasion attempts. This assumption does not hold good in the U.S.A. and Canada, and hardly in the United Kingdom.

Owing to the larger or smaller distance from the Iron Curtain, considerable differences are to be found in the basis for warning the civil population against air attacks. In a country like Denmark, the time factor is very short — in fact, a question of seconds.

In small countries, the development of a national organization will always be easier than in large countries. People know one another, and many problems can therefore often be solved through informal negotiations.

Also differences in the administrative structure of the countries are making themselves felt, and differences in the systems according to which the economic resources are provided at the different administrative levels may likewise be of decisive importance. Or different traditions in a field like national service. In Denmark, the employment of conscripts in peacetime is connected with no fundamental difficulties, while in the United Kingdom, for example, national service has traditionally been introduced only in times of war.

These factors are underlying the principle generally recognized in NATO, that Civil Emergency Measures — including Civil Defence — are a national responsibility. But this also means that an evaluation of the Civil Emergency preparedness within the overall area of the Alliance — a question which, of course, must be of interest to NATO — is much more difficult than an evaluation within the military preparedness of the Alliance, where mutually complable units are employed to a much greater extent.

After these introductory remarks, I am going to give you some information about Civil Defence in Denmark. First I intend to say a few words about the conditions under which this work is being carried out, and next I intend to mention some details in connection with the present status of the Danish Civil Defence.

It is my impression that conditions have become a good deal more difficult than they were twenty years ago, around 1950, when we commenced the reorganization of our Civil Defence after World War II — but this impression may, of course, be ascribed to the failing memory with which we have all been equipped by a merciful fate.

With regard to the point I am going to mention first: the political support given to Civil Defence, I must admit that the political climate in which the Civil Defence activities are being carried out in Denmark has not been too unfavourable. Of the 175 members of the Danish Parliament, 160 — representing the four big parties — are backing the Civil Defence, in principle, at any rate. Of the last fifteen — left-wing — members of the Danish Parliament, eleven belong to the Socialist People's Party and four members to three parties even farther to the left, and in spite of the fact that they are constantly fighting among themselves, these fifteen are uniting in a determined opposition to the Civil Defence activities.

About the next point I am going to mention: the financial support given to the Civil Defence in Denmark, I can give you the following information:

In the current year, D.kr. 120 million (equivalent to well over £6 million) has been granted on the national budget and D.kr. 20 million (equivalent to well over £1 million) on the municipal budgets. At present, this corresponds in all to approx. D.krone 30 per inhabitant (well over 30 shillings per capita). Denmark has a population of 4.8 million. The annual National Government expenditures on Civil Defence amount to hardly ½ per cent of the total annual National Government budget — in fact, a very modest insurance premium to be paid for an increase of the population's security during war. The annual National Government budget for Civil Defence constitutes 4.5 per cent of the national budget for the military defence.

To these figures I have to add, however, that they relate only to the current year. Seen over a number of years, a slowly declining trend is traceable. The Civil Defence is given no cover for the increased expenses caused by rises in wages and prices, and as wages and salaries and other inflexible expenses are swallowing up an increasingly great part of our total budget, the — rather modest — part of our total expenses which is devoted to pure establishment purposes — purchase of equipment, building measures, etc. — is therefore getting smaller and smaller.

*The address by Canada's representative J. F. Wallace, Canada E.M.O. was published in the June-July 1970 edition of the Digest.

This tendency witnessed within the financial field is falling rather well in line with developments in the attitude adopted by the public. In a democratic country, the reaction of the public will always be of great importance. I think that I am justified in saying that in some circles in Denmark the Civil Defence is gradually meeting with a certain response and a positive attitude, but, as is the case in most other countries, large sections of the Danish population are showing but slight interest in Civil Defence, and certain groups are including Civil Defence in their fight against any defensive preparation. Everything considered, I think that it may be regarded as an established fact that the interest displayed by the population in the Civil Defence activities is considerably smaller today than it was 15 to 20 years ago, and that this interest is steadily declining.

These are, however, I believe, the conditions confronting emergency preparations of any description whatever. Most people do not want to occupy their minds with unpleasant matters like disasters, not to speak of war. They simply dismiss the idea. Within Civil Defence we feel, in particular, the consequences of the fact that a new generation has grown up, to whom World War II is only history, and who on the background of the influences of our dynamic welfare society find it difficult to understand the necessity of emergency preparations like those undertaken by the Civil Defence. This has caused a considerable decline in the number of volunteers within the Danish Civil Defence, and the changed attitude adopted by the young generation to life and to the establishment is causing special problems to the conscripted services within our corps of CD Mobile Columns.

Despite the fact, however, that the working conditions are not too easy, and will probably grow even more difficult in the years to come, we are, nevertheless, in the fortunate situation of being able to say that in the past twenty years certain results have been achieved within the Danish Civil Defence.

Let us go briefly through the various Civil Defence measures: warning, evacuation, shelters, the various auxiliary services, and the information activities.

The warning service against air attacks has been fully developed. In an emergency, siren warning can be effected in all towns in the course of a few seconds. However, the problem of warning the civilian population against missiles attacks has not been solved. We have discussed the problem within the NATO Civil Defence Committee, but no solution has appeared so far.

As regards warning against radioactive fallout, the time factor is not unfavourable. At present a provisional fallout warning system exists. This system, like those in most other NATO countries, is based on the model provided by the British Warning and Monitoring Organization, a fact which I cannot mention without expressing my sincere thanks for the valuable help and assistance which so kindly has been made available to us in this field by our British friends. A large number of national and international fallout staff-exercises have been held, partly in co-operation with other NATO countries. Also these exercises, since they started in 1957, have been arranged and inspired by the British Civil Defence, and they still are, even if now formally held in a NATO setting.

Evacuation plans which can be implemented in a number of different situations have been prepared. Today, however, we give evacuation a lower priority than we did before. In the event of radioactive fallout, the population will stand a better chance of obtaining protection if not evacuated. Another point is that we want to avoid the risk of military land operations being impeded by large crowds of evacuees. We thus subscribe, in principle, to the stay put concept generally accepted within NATO, but at the same time we have made preparations for the implementation of evacuations on a minor scale where this might be dictated by circumstances.

Establishment of shelters is one of the most difficult problems facing the Civil Defence. For financial reasons we have to reduce the technical shelter requirements, but I prefer shelters of a light design to no shelters at all. I consider it justifiable to say that the establishment of shelters is the Civil Defence measure being of the greatest life-saving value. At present, our new public and private shelters are able to accommodate about 35 per cent of the population, corresponding to about 1.7 million persons. In addition, a considerable reserve of shelter space is to be found in existing old buildings. By means of experimental surveys carried out in two areas of the country, we are at present analysing the extent and usability of this reserve of shelter space. In new buildings erected after 1950 the establishment of shelters is compulsory. Part of the public shelters are the so-called dual-purpose shelters, which are used as car-parks in peacetime.

The Civil Defence post-attack services are partly organized locally, partly built up in the shape of a corps of mobile columns.

The local Civil Defence services are organized in the municipalities under the direction of the mayor concerned. These services mainly comprise fire, rescue, welfare, and signal services. The personnel consists partly of volunteers, partly — and that is the majority — of conscripts. We have 9,000 volunteers and about 23,000 conscripts, most of them being young men at the age of twenty, who have not been called up for service in the military defence. These people are given a one-month training in barracks, followed by a supplementary training in the town where they live, partly taking place in realistic training grounds (ruins etc.). Large quantities of matériel and equipment are being issued by the National Government to all local services in order to enable them to establish operational units.

For the assistance of towns struck by heavy attacks we have built up a corps of CD Mobile Columns, a very strong reserve to be activated during war by the National Civil Defence Command. Since their start in 1941, these columns have been based solely on

conscripts. The present mobilization strength of the columns is about 13,000 men, a figure fully satisfying our requirements. 1,300 men are called up every year. They are young conscripts recruited by draft-boards on a par with the men of the armed forces, and they will never be called up for military service. They serve for a period of ten months. Part of the cadre of the columns consists of about 350 regular officers, who are civil servants. The columns are provided with large quantities of heavy fire-fighting and rescue equipment of every description.

The ambulance service is organized as a special, nationally administered service, the personnel of which consists partly of conscripts, partly of voluntary women.

To conduct the Civil Defence during war we have built up a special control and command organization. Both at the national, the regional, and the local level we have at our disposal underground, specially reinforced control centres, which are equipped with an extensive signal network, telephone, telex, and radio, and are manned mainly with volunteers.

Measures to protect the population against chemical warfare have not yet been taken in Denmark, but under the impression of the technical development constantly going on within chemical weapons, we have had the matter under consideration for a long time, and a general plan suggesting simple and costless measures was prepared last year and has been submitted to the Ministry of the Interior.

Allow me to add that detailed mobilization plans designed to put the various Civil Defence services in readiness in different alert situations have been prepared at central, regional and local level. All these plans have been adapted to the other Civil Emergency alert measures taken by different civilian authorities, and to the military defence.

I consider it justifiable to assume that the occurrence of an alert situation will be preceded by a period of increased political tension, a period possibly extending over a few weeks. At present we are preparing plans for undertaking in such situation a speedy acceleration of the development activities. A period of this nature may, of course, be used for implementation of various measures if preparations to this effect have been made in advance. This does not mean, however, that we consider it warrantable to postpone the implementation of essential parts of the Civil Defence activities until this situation arises. The development of a Civil Defence organization of some strength takes years, and could never be improvised in the course of weeks.

An extremely important aspect of our activities is to be found in the information service. If this service were neglected, we should lose, little by little, the popular background without which Civil Defence in our democratic countries cannot survive in the long run. We are making intensive efforts to disseminate knowledge of Civil Defence among the public, in the form of pamphlets, meetings, discussions, films, exhibitions, and in many other ways. We are attaching special importance to keeping on friendly terms with the press and the radio. We are telling people the truth about the possibilities for obtaining protection during a modern war of annihilation and about the limitations inherent in every Civil Defence organization. We emphasize, however, the incontrovertible fact that simple and cheap Civil Defence measures — some taken by the authorities and others by the individual citizen — will in our country be able to save hundreds of thousands of human lives, and may mean the whole difference between extermination of the nation and its survival.

I hope that this survey may have given you a balanced impression of what we have achieved — and not achieved — in my country within the field of Civil Defence. We have still far to go, and I am curious to see how far we shall succeed in getting before the growing indifference to Civil Defence and the scattered opposition to our work, combined with continuous cuts in appropriations, will make it impossible to get very much farther.

By way of conclusion I would like to advance some general observations:

The farther we get — and that means first and foremost: the more money that is invested in Civil Defence — the greater the possibility will be for making a humanitarian effort for the benefit of the population during war — an effort aiming at minimizing the loss of human lives and relieving human sufferings. That this is the principal task of Civil Defence is a well-known fact.

That this also means that we would, in the same proportion, strengthen the overall defensive capability of our nation is an equally well-known fact.

I intend, however, to mention one factor more, namely: that the existence of a well-developed Civil Defence will contribute to increasing the political freedom of action in the fateful hour of a nation.

Just try to imagine what would happen if shelters for the population were non-existent, and the speedy provision of shelters in an emergency had not been prepared through shelter surveys made in advance, and instructions to the population had not been prepared in times of peace. Such shortcomings would seriously affect the governments' ability to act in a situation of serious tension requiring, to a very considerable extent, political resolution.

Try, furthermore, to imagine the panic that would arise in the populations if the Soviet Union should decide to employ chemical warfare against limited areas within the Alliance, or just threaten to do so. The violent political pressure exerted by an unprotected population might in our Western countries become a factor of decisive importance to the process of political resolutions, and consequently to the defence capability of the Alliance.

Try also to imagine what would happen if, right from the outset of a war, our towns were exposed to heavy conventional or nuclear attacks and supplementary

(Continued on page 18) **IN DENMARK**

SURVIVAL

by
Brigadier T. E. H. Helby, M.C. (Retired)

The following address was presented to the Association of Civil Defence Officers in Scarborough, England.

Introduction

It is 50 years since we finished "The war to end all wars", 25 years since the end of the next one, and we are not out of the wood yet. There is still no clear vista of peaceful years stretching into the distance ahead of us.

Although a major upheaval may not be imminent, the possibility of this country being drawn with our N.A.T.O. allies into a war with an adversary possessed of a formidable nuclear armament and great naval strength cannot safely be ignored. In such a war the aim of our opponent would be to eliminate our nuclear strike potential, and destroy our capacity to wage war. The means employed would include nuclear attack as well as action designed to interrupt our sea and air communications.

This country is so vulnerable and so dependent on sea communications that involvement in such a war might, unless we are prepared, threaten our very survival. Survival in this context implies that these Islands should, throughout the years ahead, continue to be inhabited by the descendents of the people who now form the British nation, living in such circumstances of religious, social and political order as to constitute a civilized community based on the traditions, ideals, culture and inherent characteristics of the British people.

The immediate problem will be to preserve alive during the period of the attacks and throughout the years immediately following, enough strong and healthy men, women and children to form the basis of and to perpetuate much a community in sufficient strength that other peoples from elsewhere may be deterred from seizing our country and driving us from our lands.

England a Target

Since Elizabethan times, whenever any power has tried to make itself predominant in the world, the rock on which it has eventually foundered has always been England.

Hitler's view of this nation, expressed in "Mein Kampf" before he came to power, is perhaps worth noting, for it is possible that his estimate of the British people may be shared by others today. He wrote "The spirit of the British Nation enables it to carry through to victory any struggle it once enters upon; no matter how long such struggle may last, nor however great the sacrifices that may be necessary, nor whatever the means that may have to be used, and all this though the equipment actually available may be utterly inadequate as compared with that of other nations."

Even though Britain's power and influence has greatly diminished since that was written, it cannot safely be assumed that a power aiming at supremacy will not remember that similar aspirations have been frustrated more than once in the past by the sheer obstinacy and relentless opposition of this country. That power might even remember what Pitt said shortly after Trafalgar: "England has saved herself by her exertions; she will save Europe by her example."

A power bidding for world supremacy, or even the domination of Europe, would surely be wise to seek at the very outset so to neutralise Britain that she could take no further part in the war, and so to enfeeble her that it would be many years before she could again become a factor in world politics.

Effect of Attack

If it were the enemy's intention to eliminate Britain from the contest, then, provided resources were available, and they probably would be, for we know that in the hands of the major powers nuclear weapons are in plentiful supply, we might expect attacks on: (i) Naval, Military and Air Force installation. (ii) Our major seaports, airports and shipwards. (iii) London and our important industrial towns. (iv) The larger power stations. (v) Every major oil installation and oil storage depot. (vi) And lastly our shipping at sea.

After the nuclear attacks are over, no matter what damage we and our allies may have been able to inflict on the enemy, we shall be likely to find:—

- Our cities with their factories and industrial potential in ruins. Vast numbers of our workers, skilled artisans, technicians, executives, scientists and administrators dead. Many records and much of our industrial know-how irretrievably lost.
- Power supplies practically non-existent.
- Rail transport hardly working at all. Road transport limited and dwindling with the increasing difficulty of vehicle maintenance and the progressive exhaustion of fuel supplies.
- Means of inter-communication scanty and deteriorating as batteries and equipment wear out and cannot be replaced.
- Our capacity to repair and re-activate essential services minimal.

- Stocks of food and fuel oil available in the country limited.
- Our supply routes with the outside world interrupted.

We shall be hard and probably on our own.

National Self-Dependence

With our allies engaged in a life and death struggle for their own survival, and with sea communications difficult, dangerous and very precarious, it seems unlikely that they would divert from their own needs the very considerable effort and resources required to keep Britain supplied with her basic necessities, especially when they might, with some justification, believe that we were no longer a factor in the struggle.

It would surely be quite unrealistic to rely on food and fuel oil being brought into this country from overseas in any significant quantities for a long time. For months, possibly even for a matter of years, we may have to fend for ourselves, to depend entirely on our own resources; i.e. the raw materials indigenous to the county, such stocks of food, fuel oil, manufactured goods and imported raw materials as may have escaped the general devastation. Beyond that we shall be dependent for all essentials of life on what we can grow and produce ourselves from our scanty raw materials and with inadequate means of production.

Regression

We live in a mechanical age where the production and distribution of all the essentials of life, except to some extent water, are dependent on the machine, on readily available supplies of electrical energy, and on oil fuel.

We can no longer grow, nor import, nor distribute our food without mechanical means; we cannot even milk a herd of cows without a machine; practically every item of consumer goods is factory-produced; the machines we use are themselves dependent on factory-produced spare parts to keep them running; there is hardly a workshop in the country, however small, that does not to some extent rely on electrical energy of its operation. The working of our farms and our entire road transport system are wholly dependent on supplies of imported oil fuel.

To imagine that after the devastation caused by the attacks, and the consequent disruption of the whole fabric of society, as well as the interruption of the flow of supplies from overseas, to imagine that we shall be able to continue our present way of life, even on a very restricted scale, is sheer fantasy.

We shall be jolted out of the mechanical age and forced to revert for a period, possibly quite a lengthy period, to simpler and more primitive ways such as were followed in the arly days of the Industrial Revolution.

This readjustment of our lives will be difficult and very painful.

Our ancestors of those days were hardy, self-reliant and predominantly rural people. They lived close to the land and knew exactly where their food came from and how to get it. They were thrifty, accustomed to short commons, hard living and little comfort. A common saying of the times was "Waste not, want not."

It is not thus with the present generation. The material comforts so abundantly supplied by our industries have robbed us of our hardihood; the motor car and labour saving marchiney have reduced our physical strength and endurance; while the ever present help and support of the Welfare State have sapped our self-reliance. Frugality is an outmoded conception; "Use once and throw away" pays better wages and dividends.

Our population is predominantly urban, with little knowledge of how to obtain the necessities of life unless they can be bought in a shop or drawn at the ration stand. We are singularly ill-equipped to fend for ourselves.

In planning to meet a war emergency, unless this factor and the conditions kilely to prevail during the period of survival are taken into consideration, the plans produced may be of little help to the struggling survivors.

Bare Necessities

When the nuclear attacks have ceased, the bulk of the survivors will be found in the rural parishes and small country towns, which areas will be very overcrowded and ill-provided to meet the needs of their swollen populations.

The essential material needs of the people will be food, water, fuel for cooking, shelter, and clothing. There is nothing elso we cannot do without if we have to. In the temperate climate of this well-watered island, except for food, all these essentials can be sufficiently met from local resources. Food is the critical factor. If we can produce and distribute enough food to keep alive, not all those who have survived the initial attachs, for that we are unlikely to be able to do, but enough of them to ensure that the nucleus of a civilized community on which to build for the future is preserved in most of our rural parishes and little country towns, we shall win through.

As time goes on we shall be able to develop further resources.

Food and Agriculture

Food supplies immediately available to us might include:—

- The unexpended portion of the year's harvest gathered in on the farms.
- Livestock on the farms which have survived the initial attacks and the effects of radiation from fall-out.
- Stocks in the hands of importers and wholesalers, and those laid down by the Government

to meet an emergency which have escaped destruction and can still be extracted from their places of storage and distributed.

In total it might add up to a few weeks' supply in some places and less in others.

Once these stocks are finished, with overseas supplies cut off, we must look to what we can grow ourselves to keep us alive.

There is going to be an extremely critical period from the time when the initial stocks have been exhausted until our home production starts coming in. To afford some prospect of bridging this gap, we must, at the first warning of a possible emergency impose strict rationing, and at the same time sow and plant every available bit of land which is suitable with anything which is appropriate to the season and is edible and quick maturing.

I cannot stress too strongly that the only certain source of further supplies is the food we grow here in this country. If, in the expectation of supplies coming in from overseas, we relax our efforts to help ourselves we shall surely be heading for disaster.

Our agriculture, as it is practised today, to give high yields per acre and per animal, relies largely on imported and factory-produced artificial fertilizers and feeding stuffs. It is highly mechanised and is entirely dependent on supplies of imported oil fuel.

As with food, so with oil, stocks available will be limited and replenishment unlikely.

Even if for a time, using stocks available on the farm, we are able to continue our accustomed methods of agriculture, the immediate effect of nuclear attack will be the destruction of much livestock, the contamination of milk and growing crops, as well as general interference with the operation of the farms, and the distribution of their products. An immediate and drastic fall in output cannot be avoided.

As stocks of feeding stuffs and fertilizers run out, machinery becomes unserviceable from lack of maintenance and tractors stop for want of fuel, we shall be forced radically to alter our methods of farming. The energy derived from oil fuel and electricity will have to be replaced by animal and man power; and since there are practically no draught horses and cattle will be scarce and very precious, man power will have to be the chief source of energy.

Our farms are no longer equipped for operation by animal and manual labour, hand tools are scarce and modern implements and vehicles are unsuitable for such use.

Readjustments to entirely different methods of working will be a difficult and lengthy process, and at first output will certainly be low.

In the circumstances, we should perhaps consider whether we ought not to devote to the production and distribution of food, practically the whole of our available stocks of oil fuel. This might enable the farmer to produce one more harvest by methods to which he is accustomed, and give him a breathing space in which to make provision for further production by less sophisticated methods.

It might even be the decisive factor in closing the critical gap between the exhaustion of our initial stocks and the harvesting of our home grown supplies.

Population

As recently as the year 1800 A.D. during the Napoleonic wars, before we had started to import cheap food from overseas, the population of England and Wales was under 9 millions. It is probable that a somewhat larger population could have been supported; but our population now is between fifty and sixty millions.

Even allowing for the very heavy casualties which will result immediately from the nuclear attacks, and having regard to the stocks of food likely to be in the country and the means of distribution which may then be available, it seems almost certain that it will not be possible to maintain a minimum subsistance ration for the survivors of the initial attacks until radiation sickness, exposure, hunger and disease have reduced the population to a level which can be supported from our own resources. How high that level can be kept, and how many must die before a balance is reached may ultimately decide the question of national survival.

Administration

When the whole life of the nation has been disrupted and proper means of communications are almost non-existent, it seems to me that the only practical form of government will be authoritarian with a completely decentralized system of administration. It may often happen, particularly in the early days, the various echelons of government will be out of touch with each other; and the lower echelons, districts and parishes, will have to act on their own initiative, and administer their areas without any help or guidance from above.

At each echelon, be it region or parish, there must be one authority responsible for all aspects of administration within its area, whose orders will have the force of law. Each echelon of Government, while following any policy laid down by its immediate superior, must be free to administer its area, and maintain law and order therein, as best it can in the circumstances prevailing at the time.

Until effective and reliable systems of transport and intercommunications have been re-established, it will be expedient that authority to exercise, in the name of the Queen, many of the functions of government be delegate in varying degrees to the different echelons of subordinate government, right down to the level of the parish; and that the lower echelons be given considerable powers of summary jurisdiction.

Any plans or preparations we make to meet the requirements of the survival period must reflect the fundamental changes which will occur in the whole pattern of life, or they will be irrelevant. We must abandon the idea that it will be possible to administer

the country by any system which depends for its operation on modern means of reliable inter-communication or on the motor vehicle as the normal means of transport.

The Rural Parish

It might perhaps help us to make a more realistic appraisal of the probable situation if we try to visualise what might be happening in many a rural parish during the early days of the catastrophe.

I have in mind a parish lying about twenty to twenty-five miles distant from a possible target area, for there will be many such parishes. Those more remote will naturally fare better.

If warning of possible attack extends to days rather than hours, the population of the parish may be increased by three, four or more fold by persons coming in from neighbouring industrial areas to the greater security of the countryside. The consequent demand for covered accommodation will so far exceed the capacity of the parish that a few square feet under any roof is all that some people will get, while accommodation in shelters giving protection against radiation will clearly be quite inadequate.

These refugees from the urban areas may well arrive with little food and few personal possessions, families incomplete, strangers to each other as well as to their hosts, unused to rural ways, ignorant of the hazards of radiation, weary and apprehensive.

The population of the parish may thus well consist of a heterogeneous collection of fearful and overwrought people, living in grossly overcrowded and unfamiliar surroundings with little cohesion as a community, waiting in anxious expectation for a catastrophe, the nature and horror of which they do not fully comprehend, and therefore fear the more.

At this time there is likely to be many a parish council in office, utterly lacking in capacity to administer the parish in the circumstances envisaged. Yet the organisation and orderly administration of the parish is of vital importance to the life of the community that some person or persons of sufficient ability and strength of character to exercise authority effectively must either be given, or seize, the power to do so.

During the period of warning every household will endeavour to build up a stock of food, but many may not succeed in getting as much as a fortnight's supply for the normal household, still less for the influx from elsewhere.

By the time the attack develops, all the people should be under cover, protected against direct radiation and heat rays. For a short time after the attack, until the arrival of fall-out, there will be a period of intense activity, putting out fires, rescuing and tending casualties, getting as many people and animals as possible under cover and protected against radiation.

One radiation from fall-out has reached a dangerous level, (and it should perhaps be noted that in the parish no instruments for measuring the intensity of radiation are presently available) the parish should appear uninhabited; but there are bound to be people still about, possibly quite a considerable number, some who do not appreciate the danger from radiation and others who, knowing the danger, will sacrifice themselves to help the less fortunate. Such people will probably not survive.

By the time the radiation has decreased to an acceptable level, the parish may well look a deserted area. For those who have remained in shelter it will have been a time of acute discomfort, anxiety and probably hunger. They will emerge to find a stricken countryside; trees and hedgerows scorched, burned out and damaged buildings, casualties liying about here and there, the dead unburied and already turning black, some not yet quite dead, animals lying dead in the fields, no electricity supply, possibly no piped water, little fuel, and except on the farms, no food either at home or in the local shops. As time goes on more and more movement of people and vehicles will be observed. Hungry people will be looking for food.

At this stage an effective parish authority is quite indispensable to maintain law and order, to tell the people what must be done, to organise the community to carry out those tasks which are essential for its life, and to procure and distribute equitably the food it must have.

The temptation to eat the seed corn and breeding animals will be great, and as time goes on will become stronger and stronger; to do so would effectively prevent survival.

Morale

But "man does not live by bread alone", and of all the factors bearing on the question of survival, that of morale is by far the most potent. If the community is not to perish, it must be imbued with a will to survive and a belief in its ability to do so.

The morale of the parish community will be a direct reflection of the capacity of the parish authority and the quality of their leadership. Their wise direction of affairs, clear and firm orders, their integrity and absolute impartiality, and above all their example of selfless and tireless devotion to the needs of their people may well make the difference between survival and extinction.

Make no mistake, before we are through we shall be pressed to the very limits of our spiritual and physical endurance. For some of the weary, half-starved and nearly exhausted members of the community it will be easier just to give up and die than to continue the struggle; but if we are to survive, if the nation is to survive, struggle on we must, each one of us, until we drop.

The road to survival will be a nightmare of privation and unremitting toil to produce and distribute food with inadequate resources and primitive equipment. Many will fall by the way, but if our people still have those qualities of character which in the past have

sustained us in our darkest hours, that stubborn tenacity of purpose which enables a man to give of his best without counting the cost or seeking for reward, and to keep on doing so day after day so long as he is able because to give up the struggle and admit defeat is not within the tradition of his people, and if in the rural parishes we can still find leaders to inspire their communities to such behaviour, the British nation will survive.

It is in the rural parishes, where the food is grown, that the battle for survival will be won or lost. ▲

CIVIL DEFENCE *(Continued from page 7)*

Committee of the CPSU, the defence ministry and all essential governmental agencies in case of war."

The ordinary Soviet citizens, however, have also sufficient opportunities to protect themselves before it is too late. To achieve this, the Soviet civil defence system provides adequate facilities. No person needs to be unprepared if the warning should ever be sounded — which, surely, nobody in the Soviet Union wishes to hear either — : "CITIZENS, THIS IS AN AIR ALERT, AIR ALERT, AIR ALERT!" ▲

HIDDEN ECONOMY *(Continued from page 10)*

that it will usually cost additional money to build such a school. This money must be provided at the time the building is constructed whereas cost savings would accrue only over a period of years. The school board may, therefore, be reluctant to make this investment.

But what is it that they are being asked to do? If it is assumed that it will cost $25 in increased costs to provide shelter space for one person (it can often be done for less than this) and that the building will last for 25 years, the board is being asked to pay an "insurance premium" of one dollar per year per child to save that child's life in the event of nuclear disaster. This seems to be a very small price to pay. Yet, as an added inducement to buy the "insurance," the board is offered a building which should last longer, require less maintenance, be easier and cheaper to heat and cool, will save money on fire insurance premiums and still meet all educational requirements.

On this basis, fallout shelter in schools seems like a reasonable proposition. ▲

IN DENMARK *(Continued from page 13)*

fire-fighting and rescue units had not been organized, trained and equipped to an adequate extent — i.e. an extent far exceeding the peacetime preparedness. Such shortcomings, too, might create a political pressure that might conduce to weakening the defensive capability.

Finally a problem of special importance on the European Continent: Try to imagine the situation that would arise if millions of refugees crowded into the roads as a result of lacking implementation of the agreed stay put policy, and the necessary Civil Defence or police auxiliary forces, which — at any rate to some extent — might be able to bring such a situation under control, had not been established. The resulting chaotic situation would create the most difficult background imaginable for the political resolutions to be made.

I believe that you, gentlemen, will agree with me in most of these views.

It is, however, not so easy to pursue a clear-cut policy in the enormous adaptation process we are witnessing. All the time we are compelled to adapt ourselves to developments within the weapons of offence, to the changes in social structure, the changes in social mentality and in the outlook of the new generation, the changes in the political and economic conditions entailed by the evolution, and the numerous other radical changes resulting from the dynamic development of our society.

If we now and then should feel that the whole thing is getting too much for us, we may find encouragement in recalling the wise man's explanation of the difference between a pessimist and an optimist: "The pessimist sees a problem in every task. The optimist sees a task in every problem."

Within Civil Defence, there is only room for super-optimists. ▲

WHATEVER HAPPENED TO EMERGENCY PLANNING?

by
Maurice L. Greiner, A.M.I. Fire E.

Mr. Greiner was Director of the Regina Emergency Measures Organization from 1966-1968 when he left to accept the responsibilities of Safety/Security Co-ordinator for the Simplot Chemical Company, Ltd.

He is a member of the Institution of Fire Engineers, the American Society of Safety Engineers, and the Manitoba Association of Fire Chiefs.

Until recently, it was my privilege to be directly involved in civil emergency planning at the municipal level as an EMO Director. I have since entered the chemical industry as a safety and security co-ordinator, in which capacity I am still involved in emergency planning. It is a necessary activity wherever you have people and resources.

As an observer now of the civil emergency planning field I continue to appreciate the problems and requirements of many municipal emergency planners and applaud their efforts.

However it is disappointing to hear and read of the disenchanted views being expressed by some so-called EMO directors in the wake of budget cuts. I say "so-called" because instead of accepting their true role as planners and organizers, they are determined to play an "empire-building" role as "directors" of their respective "organizations", spending as much money as possible on a variety of standby equipment and resources.

I recently read of one EMO director who expressed the view that since his budget was so drastically reduced the Emergency Measures Organization in his area might as well cease to function.

What he was really saying in effect was, "I am unable to spend money to build up our (my?) organization so that it will be big enough, or trained enough, etc. to respond to emergency . . . ", or perhaps he's just saying, "if I cannot spend money, what am I going to do as EMO director?".

Whatever happened to "planning" and "organization"? The above director still has his job. The resources and skills are already there in abundance; all he has to do is put his brain, talents, pen, telephone and feet to work in planning and organizing. And once he has developed practical emergency procedures it will take every second or his spare time thereafter to maintain the plan, resource lists, contracts etc. so that they are up to date.

I do not believe that the Emergency Measures Organization was ever meant to be anything more than a planning and co-ordinating government agency. Therefore it should not be represented as an organization (in the noun sense) with vast resources of manpower and equipment.

Emergency preparedness is a relatively inexpensive commodity if existing resources and manpower are utilized to the fullest extent.

I sincerely believe that the Emergency Measures Organization is more needed today than ever before. In this period of sophisticated weaponry, strained diplomatic relations between powerful countries, rapid advances in technology, environmental health hazards, increased urbanization and jumbo jet air travel, the office of the emergency planner must necessarily take on greater significance.

Furthermore, he (the emergency planner) should work closely with industrial and city planners to ensure that potential disaster situations are minimized to the fullest extent. He should also work closely with each of the essential government services and welfare agencies to ensure that their normal day-to-day activities can be swiftly dovetailed together—and augmented wherever necessary with community resources—should disaster strike.

Emergency planning is more than good insurance, it is logical, reasonable and practical for not only times of war or civil strife but as well for times of peace.▲

If undelivered return to:

© Queen's Printer for Canada, Ottawa, 1970.

CANADA
POSTAGE PAID
PORT PAYÉ